

TESTIMONY OF RANDY IWASE
CHAIR, PUBLIC UTILITIES COMMISSION
STATE OF HAWAII
TO THE
HOUSE COMMITTEE ON
CONSUMER PROTECTION AND COMMERCE

February 28, 2017
2:00 p.m.

MEASURE: H.B. No. 1248, H.D. 1
TITLE: RELATING TO MICROGRIDS

Chair McKelvey and Members of the Committee:

DESCRIPTION:

This measure would exempt “microgrid demonstration projects” from Public Utilities Commission (“Commission”) regulation, except as may be needed to facilitate safe interconnection of the to an electric public utility grid.

This measure designates the property controlled by the Natural Energy Laboratory of Hawaii Authority as a “microgrid demonstration project.” This measure also authorizes the Commission to designate other microgrid demonstration projects after an unspecified date. This measure also authorizes the Commission to enable and compel electric utilities to allow the development of microgrid demonstration projects.

POSITION:

The Commission offers the following comments for the Committee’s consideration.

COMMENTS:

The Commission supports the development of microgrids as an option to meet the energy needs of customers as articulated in the *Commission’s Inclinations on the Future of Hawaii’s Electric Utilities* (See Docket No. 2012-0036, Order No. 32052). Microgrids offer the potential to aggregate pockets of load and generation resources, which can disconnect and reconnect to the main grid in times of emergency.

However, the Commission notes that oversight and consumer protection issues may arise for entities served or affected by microgrids exempt from Commission regulation. For example, it is unclear how just and reasonable rates and important minimum standards for reliability would be established for microgrids exempt from Commission regulation, particularly if that microgrid “may or may not use portions of an electric public utility’s transmission or distribution lines” and “may or may not provide, sell, or transmit renewable energy to a person other than the person who owns, controls, operates, or manages the microgrid[.]” Furthermore, it is unclear if the proposed language related to wheeling could result in undue subsidization of microgrids by other customers, absent Commission review. The Commission should retain the appropriate regulatory authority necessary to address such issues for microgrids.

Thank you for the opportunity to testify on this measure.



NATURAL ENERGY LABORATORY OF HAWAII AUTHORITY



An Authority of the State of Hawaii attached to the Department of Business, Economic Development & Tourism

LATE

Statement of
Gregory P. Barbour
Executive Director

Natural Energy Laboratory of Hawaii Authority
before the

COMMITTEE ON CONSUMER PROTECTION AND COMMERCE

Tuesday, February 28, 2017
2:00 pm
State Capitol, Conference Room 329

in consideration of

HB 1248 HD1 RELATING TO MICROGRIDS.

The Natural Energy Laboratory of Hawaii Authority (NELHA) supports HB 1248 HD 1 with amendments which enables microgrid demonstration projects in Hawaii.

The implementation of microgrid technology at NELHA has long been a key component of NELHA's Distributed Energy Resources (DER) strategy and its master plan which were recently updated in 2013 and 2011 respectively.

Many reports over the years have recognized that we provide an ideal location to address deployment challenges; provide power to pump seawater to the businesses in the park that require a continuous supply to avoid catastrophic losses; understand integration into the island-wide utility grid; and, perhaps most importantly how microgrids can help the island-wide grid.

NELHA possesses a unique combination of physical infrastructure and access to clean energy resources. More specifically, NELHA's strategic location on Keahole Point results in our technology park being a self-contained "branch" served by two separate feeder lines from the main island-wide transmission grid. In addition, as a seawater utility, we operate three main pump stations throughout the park with a high electrical demand of approximately 1 MW. NELHA has many components of a microgrid due to its development in the early 80s which includes ownership of switchgear and transformers in the Research Campus and Farm Compound as well as the recent development of Supervisory Control and Data Acquisition System (SCADA) which includes a vast array of utility grade power monitoring devices, computer storage and display system. Finally, we have many existing and planned renewable energy demonstration projects ranging from energy generation (ocean thermal energy conversion, concentrated solar power, PV, and biofuels) to energy storage (electrical energy storage test bed, and hydrogen production and storage).

HB 1248 HD 1 would facilitate and accelerate the implementation of microgrid technology at NELHA by assisting us in applying for US Federal government funding. We have also had many inquiries from businesses and governments overseas interested to microgrid demonstration at NELHA due to the unique characteristics outlined above. In addition, while NELHA has assembled various microgrid components, HB 1248 HD1 would allow NELHA to adopt a more comprehensive approach with respect to its DER by removing current limitations. Our vision is to deploy microgrid technology only within the park to serve our own demand from the seawater pump stations and the park clients' needs. We do not intend to wheel electrical power outside of the park boundaries.

We believe the creation of a new microgrid advisory committee is unnecessary and

could be inconsistent with the intent of this measure to assist in the development of microgrids. The NELHA Board of Directors and our Research Advisory Committee, which is established pursuant to §227D-4, already provides the structure necessary with safeguards for consumer protection, fairness, and safety. The appointment of members to the NELHA Research Advisory Committee is mandatory per §227D-4 HRS for the purpose of obtaining expert and specialized counsel and advice to the Board of Directors. The Chairperson and Secretary of this committee are in turn members of the NELHA Board of Directors. We also note that four of the seven members of the proposed microgrid advisory committee are already from agencies represented on the NELHA Board of Directors.

The lessons learned here at NELHA will be directly applicable to the rest of Hawaii to help in understanding the benefits of microgrids to island-wide grids. In addition, it is important to note that a recent national study found that lower costs for electricity increases economic growth. It will also help fulfill NELHA's mission of economic development in West Hawaii by stabilizing electrical costs within the park, assisting with the commercialization of renewable energy technologies and diversifying the economy

Thank you for the opportunity to offer these comments.



Email: communications@ulupono.com

HOUSE COMMITTEE ON CONSUMER PROTECTION & COMMERCE
Tuesday, February 28, 2017 — 2:00 p.m. — Room 329

Ulupono Initiative Strongly Supports HB 1248 HD 1 with an Amendment, Relating to Microgrids

Dear Chair McKelvey, Vice Chair Ichiyama, and Members of the Committee:

My name is Kyle Datta and I am General Partner of the Ulupono Initiative, a Hawai'i-based impact investment firm that strives to improve the quality of life for the people of Hawai'i by working toward solutions that create more locally produced food; increase affordable, clean, renewable energy; and reduce waste. Ulupono believes that self-sufficiency is essential to our future prosperity and will help shape a future where economic progress and mission-focused impact can work hand in hand.

Ulupono strongly supports HB 1248 HD 1, which authorizes the establishment of microgrid demonstration projects because it aligns with our goal of increasing the production of clean, renewable energy in Hawai'i.

It will take a high amount of renewable energy innovation to achieve the state's ambitious goal of 100 percent clean energy by 2045. Microgrid projects can provide communities and organizations with a faster path for incorporating renewable energy production and storage projects. Microgrids provide each island's system with greater resilience because these grids are able to separate from the electricity grid if it fails and then help restart the grid. While the Department of Defense's microgrids help play this role today, additional microgrids on the civilian side would augment system security for all. For businesses that rely upon a continuous supply of electricity from a microgrid, such as hospitals and hotels, certain microgrids need to sell their power to those businesses without being considered a public utility. NELHA in Kailua-Kona is an example of this, where the fisheries businesses would suffer catastrophic losses in the event of power loss, and it is cheaper to provide reliability for the microgrid than the individual business.

The legislation should ensure that enabling microgrids does not cause grid defection without the appropriate exit charges to guarantee the remaining grid customers are not harmed. This can be addressed by amending 269 (b) to read:

(b) The Public Utilities Commission may take any steps the commission deems necessary to

Investing in a Sustainable Hawai'i

enable and compel electric public utilities to allow the development of microgrid demonstration projects by non-utilities. These steps may include issuing related orders, amending or adopting related rules, working with permitting agencies or other authorities to grant exemptions, or other steps necessary to enable microgrid demonstration projects. Starting on page 4, line 11, add, “The Public Utilities Commission shall determine what exit charges are necessary to prevent the remaining ratepayers from paying for the embedded costs that would have otherwise been paid by the microgrid customers.”

In addition, it provides the utility, regulators, and stakeholders with test cases for new methods of reducing imported fossil fuel use, which may contribute to supporting the state’s energy goals.

As Hawai‘i’s energy issues become more complex and challenging, we appreciate this committee’s efforts to look at policies that support renewable energy production.

Thank you for this opportunity to testify.

Respectfully,

Kyle Datta
General Partner



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TESTIMONY OF JOHN CROUCH ON BEHALF OF ERS, A RENEWABLE ENERGY COMPANY
BASED IN HAWAII, BEFORE THE
HOUSE COMMITTEE ON CONSUMER PROTECTION AND COMMERCE

In SUPPORT of HB 1248 HD1, HSCR520 RELATING TO MICROGRIDS

Tuesday, February 28, 2017 2:00 PM. Conference Room 329

Aloha, Rep. Angus L.K. McKelvey, Chair, Rep. Linda Ichiyama, Vice Chair and members of the Committee, my name is John Crouch. I have been involved in the design and installation of renewable energy projects in Hawaii since the first large unit at Mauna Lani Bay Hotel and Bungalows in 1998 and the first large scale PV project in Hawaii, 2008, on Lana'i composed of 1.5MW of PV to supply 30% of the daytime load.

ERS is in **SUPPORT** of **HB 1248 HD1 HSCR520**

This Bill gives the opportunity to demonstrate the use of microgrids without the cumbersome filings of a utility entity. This is needed to facilitate the use of microgrids in our schools and other qualified entities.

Microgrids can facilitate the achievement of Hawaii's clean energy policies by enabling the integration of higher levels of renewable energy and advanced distributed energy resources, including energy storage and demand response to our electrical grid system.

It is important to allow microgrids to operate as NON UTILITY entities, because they serve specific, easily identified, users, not the general public.

HB 1248 HD1 HSCR520 – Is important as a tool to help us reach our goals of energy security sooner than later.

Thank you for allowing me to testify. John Crouch

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COLLEGE OF SOCIAL SCIENCES

HAWAII ENERGY POLICY FORUM

UNIVERSITY OF HAWAI'I AT MĀNOA

Hawaii Energy Policy Forum

Jeanne Schultz Afuvai, Hawaii Inst. for Public Affairs
Hajime Alabanza, Hawaii Solar Energy Association
John Antonio, US Dept of Agriculture
Karlie Asato, Hawaii Government Employees Assn
David Bissell, Kauai Island Utility Cooperative
Joseph Boivin, Hawaii Gas
Warren Bollmeier, Hawaii Renewable Energy Alliance
Michael Brittain, IBEW, Local Union 1260
Albert Chee, Chevron
Elizabeth Cole, The Kohala Center
Kyle Datta, Ulupono Initiative
Mitch Ewan, UH Hawaii Natural Energy Institute
Jay Fidell, ThinkTech Hawaii
Carl Freedman, Haiku Design & Analysis
Matthias Fripp, REIS at University of Hawaii
Ford Fuchigami, Hawaii Dept of Transportation
Justin Gruenstein, City & County of Honolulu
Dale Hahn, Ofc of US Senator Brian Schatz
Michael Hamnett, SSRI at University of Hawaii
Senator Lorraine Inouye, Hawaii State Legislature
Randy Iwase, Public Utilities Commission
Brian Kealoha, Hawaii Energy
Darren Kimura, Energy Industries
Kelly King, Sustainable Biodiesel Alliance
Kal Kobayashi, Maui County Energy Office
Representative Chris Lee, Hawaii State Legislature
Gladys Marrone, Building Industry Assn of Hawaii
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Ben Sullivan, Kauai County
Terry Surles, Hawaii State Energy Office, DBEDT
Lance Tanaka, Par Hawaii, Inc.
Maria Tome, Public Utilities Commission
Kirsten Turner, Ofc of US Representative Tulsi Gabbard
Alan Yamamoto, Ofc of US Senator Mazie Hirono

Testimony of John Cole
Chair, Regulatory Reform Working Group
Hawaii Energy Policy Forum

To the
House Committee on Consumer Protection & Commerce

February 28, 2017 at 2:00 PM in Conference Room 329

COMMENTS ON HB1248 HD1, Relating To Wheeling.

Chair McKelvey, Vice-Chair Ichiyama, and Members of the Committee,

I am John Cole, Chair of the Regulatory Reform Working Group of the Hawaii Energy Policy Forum (Forum). The Forum, created in 2002, is comprised of over 40 representatives from Hawaii's electric utilities, oil and natural gas suppliers, environmental and community groups, renewable energy industry, and federal, state and local government, including representatives from the neighbor islands. Our vision and mission, and comprehensive "10 Point Action Plan" serves as a guide to move Hawaii toward its preferred energy goals and our support for this bill.

HB 1248 HD1 authorizes the establishment of microgrid demonstration projects for the generation, storage and distribution of renewable energy.

The Forum provides the following comments:

Microgrids have great potential to help integrate more renewable energy into our electric grids and providing for additional resilience and flexibility for those on a microgrid. However, there should be a set of standards or rules that would apply to any microgrid project, rather than naming specific entities or projects in statute. Additionally, any use of a utilities assets or services should be compensated – otherwise those costs will be borne by other ratepayers.

Thank you for the opportunity to testify.

This testimony reflects the position of the Forum as a whole and not necessarily of the individual Forum members or their companies

LATE

**TESTIMONY BEFORE THE HOUSE COMMITTEE ON
CONSUMER PROTECTION & COMMERCE**

H.B. No. 1248, HD.1

Relating to Microgrids

Tuesday, February 28, 2017

2:00 pm

State Capitol, Conference Room 329

Kevin M. Katsura

Assistant Deputy General Counsel (Regulatory), Legal Department
Hawaiian Electric Company, Inc.

Chair McKelvey, Vice Chair Ichiyama, and Members of the Committee:

My name is Kevin Katsura and I am testifying on behalf of Hawaiian Electric Company and its subsidiary utilities Maui Electric Company and Hawai'i Electric Light Company (collectively referred to as the "Companies"). The Companies support microgrids that benefit all customers (those within and outside the microgrid). Accordingly, the Companies oppose H.B. 1248, H.D.1 since it does not promote this objective.

This bill, among other things, states that microgrids have the potential to be a testing ground for greater integration of renewable energy. The Companies already have plans to accelerate to 100 percent renewable energy on the islands of Molokai and Lanai, which is in part to provide critical information and operation experience in operating a high / 100 percent renewable energy grid.

This bill, however, does not define what constitutes a demonstration and is not limited to any time period. The bill also proposes to exempt a demo microgrid for requirements of utilities. Because of the wide definition, one could use this bill as written to justify the build out of an electric grid across multiple properties, across public rights of way, serving many customers, but not be subject to the requirements of an electric grid.

This bill, among other things:

- Exempts microgrid demonstration projects from being regulated as a public utility (except for a limited purpose), however it does not define what constitutes a demonstration project and it is not bound by any time period.
- May benefit some customers at the expense of all other customers who will have to pay for all the cost of the current infrastructure while impeding the utilities' ability to pursue 100% renewable energy by 2045.
- May result in the degradation of service reliability as the utility would not be able to negotiate to change operating requirements and project design to protect the system. The utilities need to be involved in setting operational reliability standards to assure system reliability.
- Based on the broad definition, could be used to justify the build out of an electric grid across multiple properties, across public rights of ways, servicing many customers, but not be subject to the requirements of an electric grid.

To ensure ALL customers benefit from, and are not adversely impacted by microgrids, we recommend that four key principles be addressed:

1. *Fairness with increased customer options:* Some of our customers have expressed an interest in exploring microgrids as the economics of different solutions, such as renewables and storage, improve. We recommend that the bill encourage collaboration and partnering between utilities and customers to design and operate microgrids and determine and coordinate the specific services needed. These

additional services should enhance the value for customers connected to the integrated energy district and ensure that ALL customers benefit from establishing microgrids, not just those within the microgrids. Also, customers within the microgrids should continue to remain customers of the utility and be able to participate in the utilities' energy programs as part of the broader integrated grid. One example of this concept is the collaboration between Hawaiian Electric and the Army to install a 50MW generating facility at Schofield. This system will normally be connected to the larger grid to provide benefits to all customers, but has the ability to be isolated to the Army system to provide them increased energy security and resiliency during abnormal circumstances, a high priority requirement for the Department of Defense.

2. Safety when operating the integrated energy district: Operating an electric grid is complex and the safety of all customers served is paramount. Having an integrated energy district within the macro grid adds more complexity to the coordination and operation of these systems particularly when personnel are working in the energy district and in the macro grid. It is recommended that the operation of the integrated energy district be the responsibility of the Companies to ensure the safety of all customers served.
3. Reliability of the macro electric system: There may be operational benefits that could be derived from an integrated energy district if executed in close coordination and partnership with the macro electric

system. To ensure that ALL customers benefit, there should not be any compromise to the stability and reliability of the public utility's electric grid.

4. Fairness regarding cost shift issues: In addition, microgrids should not result in increased costs for customers outside of the microgrids. The operational and economic benefits of an integrated energy district should benefit ALL customers. To ensure there is no cost shift issues, regulatory policies need to be addressed as well.

In addition, this Bill does not accurately describe microgrids as it could be interpreted as a grid connected to another one. The Companies would like to include the following definition of a microgrid as defined by the USDOE microgrid group:

A microgrid is a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected or island-mode.

Thank you for this opportunity to testify.